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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/099,771	03/15/2002	Scott D. Redmond	6049P001	4852

7590

01/05/2006

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EXAMINER
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BHAT, NINA NMN

ART UNIT	PAPER NUMBER
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1764

DATE MAILED: 01/05/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

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<b>Office Action Summary</b>	<b>Application No.</b> 10/099,771	<b>Applicant(s)</b> REDMOND, SCOTT D.	
	<b>Examiner</b> N. Bhat	<b>Art Unit</b> 1764	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 12 August 2005.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-33 is/are pending in the application.
- 4a) Of the above claim(s) 7-10, 27-29, 32 and 33 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-6, 11-26, 30 and 31 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☒ Claim(s) 1-33 are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 12 June 2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

### DETAILED ACTION

1. Applicant's election without traverse of Group I, claims 1-6, 11-26 and 30-31 in the reply filed on August 8, 2005 are acknowledged. The examiner acknowledges new claims 32-33 which are withdrawn as directed to claims non-elected.
2. Claims 1-6, 11-26 and 30-31 are rejected under 35 U.S.C. 112, first paragraph, as based on a disclosure, which is not enabling. In claiming the hydrogen storage and recovery apparatus applicant has not taught components critical or essential to the practice of the invention, but not included in the claim(s) is not enabled by the disclosure. See *In re Mayhew*, 527 F.2d 1229, 188 USPQ 356 (CCPA 1976). For example, in the specification applicant teaches massively catalyzed water and sodium hydride or other water reactant as the core material, a mud-like slurry which can flow through tubing inside the decom, solid alloy which is specially compounded metal hydride alloy, pre-sliced alloy. There specification lacks adequate description in order to adequately teach one having ordinary skill in the art what alloys are applicable and operable. Not all alloys will produce hydrogen, the recitations are unduly broad. Further, applicant has no dimension to the cassette except that each cassette is configured to hold approximately 28 KW of releasable hydrogen energy. It is unclear how the energy in watts converts to the size, i.e., dimension of the cassette, applicant has taught how much energy from the hydrogen is released however there is insufficient data to use this information in making the cassette there is no dimension of the cassette so no volume can be attained, and there is no mention of how much core material is contained within the cassette and therefore there are too many unknown variables in

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order to make the cassette as claimed. Further, applicant has not described what mud-like slurries will produce hydrogen except applicant recites water reactive slurries.

Applicant has recited the broad term of "core materials" which can read on materials, which have been neither contemplated nor disclosed. Applicant teaches on Page 19, paragraph [0049], that carbon nanotubes, carbon fullerenes, glass microspheres can be used as "core" materials, applicant has not taught how that would be constructed and arranged in the cassette, and what other means within the cassette are required in releasing the hydrogen so that the hydrogen can be used. With respect to applicant's disclosure, Paragraph [0053] where applicant teaches that the hydrogen output production from the Decom supplies .5 to 1 Nm<sup>3</sup>/h, when converting this number, especially on the low end of the range, the amount of hydrogen supplied would power a toy like a match box car, but certainly would not sufficiently power a scooter, moped, motorcycle, or a 2 or 4 cycle engine. Therefore, applicant has satisfied the requirement of "utility" and that the cassette will produce hydrogen, but has not enabled direct hydrogen fuel output to a fuel-consuming device which would provide a system approved for transportation by a government transportation organization as non-hazardous material or a hydrogen powered vehicle, except if it were a toy. The examiner does note that from reading applicant's IDS statements and applicant's other co-pending application that applicant is familiar with hydrogen generating devices, however, applicant has overly simplified his invention, by excluding information which is critical in teaching one having ordinary skill in the art at the time the invention was made how to make and/or use the invention as delineated above, applicant has not provided

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an adequate nexus as taking any mud-like slurry as a core material and producing hydrogen and then using the hydrogen to power a vehicle. In order to advance prosecution, and to provide the critical information to the invention without adding new matter applicant could file continuation-in-part applications and add the material as delineated above by incorporating some of the references which teach the type of "core materials" contemplated by applicant thereby providing basis for the claim language, when claiming that the hydrogen from the cassette will be used in a hydrogen powdered vehicle applicant should claim this that multiple cassettes are employed so that the amount of hydrogen is sufficient to power the vehicle. Suitable explanation and correction is required.

3. Claims 1-6, 11-26, 30-31 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

4. Claim 1-3 are rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential structural cooperative relationships of elements, such omission amounting to a gap between the necessary structural connections. See MPEP § 2172.01. The omitted structural cooperative relationships are: means for generating or extracting the hydrogen for the core material, as well as structural cooperative output means relative to the cassette and the recovery unit and to the end-point use of the hydrogen. In Claim 2, it appears that the claims are incomplete, applicant recites a system, but only teaches a cassette, which contains a hydrogen core. It is unclear what applicant means by "system". In claim 3 it is not clear how the

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electronic device is connected to the cassette, there are no connections taught. In claim 5, the term "massively catalyzed water" does not necessarily generate hydrogen. It is unclear what reaction is taking place in the cassette. In Claim 6, applicant's recitation of "solid alloy" again doesn't necessarily generate hydrogen, does applicant mean an "occluded alloy"? In Claim 12, the claims are incomplete and do not include all elements and its respective connective association. Also, in claim 12, the recovery unit "to react the material with a reactant to recover the hydrogen-based fuel" lacks positive antecedence. Claims 18 and 19 do not further limit the system of claim 2. In claim 20, "the material" lacks positive antecedence. The recitation of "...wherein the system is approved by a government transportation organization" lacks positive antecedence. In claim 25 it is unclear what applicant is trying to claim. Claim 30 does not further limit claim 1 nor is there positive antecedence for "cassette" it is also unclear what "cassette means" are within a cassette as claimed. In claim 31 it is unclear what applicant is claiming. Is applicant claiming the cassette within a box for shipment? This does not further limit the system. With respect to applicant's claims 3, 4, 14, 18, 19 and 31, these claims do not further limit the system. The examiner concedes, that applicant is entitled to add memory and telemetry circuits and electronic devices to the system, however applicant has not shown the cooperative connections to the devices with respect to the cassette and the system. Further, it is unclear what a memory and telemetry circuit adds to the hydrogen generating system or the addition of a bar code. Adding a bar code to a cassette to help in tracking would not impart patentability to a

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hydrogen generating system. Sealing the cassette in a box and/or shipping cassette does not impart patentability to the system.

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

6. Claims 1,2,6, 12, 25 and 30 are rejected under 35 U.S.C. 102(e) as being anticipated by Kravitz et al.

Kravitz et al. teach a compact source of hydrogen gas which is generated by contacting water with micro-disperse particles of sodiumborohydride in the presence of a catalyst. The micro-disperse particles are in the form of microspheres, which can be packed, in a simple cubic pattern, The interstices permit water in the form of liquid or mist or water vapor t flow through and make intimate contact with the surfaces of the sodium borohydride. The metal catalyst can be incorporated into each flue particle of microdisperse sodium borohydride. The construction and arrangement of the compact as described by Kravitz et al. fully anticipates applicant's system comprising a hydrogen fuel cassette and hydrogen recovery unit for recovering the hydrogen and then subsequently using the hydrogen.

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7. Claims 1,2, 6, 11,12,13,20,21, 25, 26 and 30 rejected under 35 U.S.C. 102(b) as being anticipated by Gamo et al.

Gamo et al. teach a hydrogen generating device which provides a hydrogen occlusion alloy container(2) which is a compact container which containing hydrogen occlusion alloy of storing hydrogen of fuel, there are further included connections attached to the hydrogen an occlusion alloy container, piping connected to pressure regulators and other connections and piping to a fuel cell. There are heat exchange means for heating the hydrogen occlusion alloy so that the hydrogen releases from the hydrogen occlusion alloy.[Note Column 4, lines 21-56] The hydrogen generator and fuel cell system as described by Gamo et al. fully anticipates applicants claims.

8. Claims 1, 2, 5, 11,12 and 15 are rejected under 35 U.S.C. 102(b) as being anticipated by Goldstein.

Goldstein teach a cassette which includes a hydrogen producing slurry which includes zinc powder and potassium hydroxide. The container, which contains the slurry of zinc and potassium hydroxide, is cast from a plastic such as polypropylene. The containers are formed as cassettes and as shown in Figure 3, any or all cassettes (44) can be lifted out of the vessel (36) and are used in producing hydrogen.[Note Column 4, lines 12-50 and Column 5, line 23 to Column 6, line 52] The rigid useable transport and storage vessel as taught by Goldstein fully anticipates applicant's claims as presently drafted.

9. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory



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obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

10. Claims 1-6, 11-26, 30 and 31 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-20 and 28-30 of copending Application No. 10/099,274. Although the conflicting claims are not identical, they are not patentably distinct from each other because both inventions claim a system comprising a hydrogen fuel cassette including a hydrogen containing core material, a hydrogen recovery unit to receive the fuel cassette to recover hydrogen from the core fuel material and to provide the hydrogen base fuel as output. The difference between the instant invention and that of the '274 application is the addition of the central controller to receive information for one or more hydrogen fuel cassette. To eliminate the controller and its intended function would have been obvious to one having ordinary skill in the art the time the invention was made because both the claims of the instant invention and that of the '274 application are drafted with comprising language which is open language which opens the claims to eliminating an element and

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its function or adding an element and its function and to eliminate the controller and its function of receiving information would have been obvious to one having ordinary skill in the art at the time the invention was made.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

11. Claims 1-6, 11-26, 30 and 31 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-27, 33-34 and 51 of copending Application No. 10/241,125. Although the conflicting claims are not identical, they are not patentably distinct from each other because both invention claim a cassette and hydrogen storing material contained within the cassette, the hydrogen storing material comprises a solid material, and there is also provided means to recover the hydrogen from the cassette. The instant application is drafted with broader claims however, the claims do overlap in scope with that of the '125. In some of the '125 claims applicant includes a hydrogen permeable material wherein the hydrogen permeable glass material is permeable to hydrogen at higher than ambient temperatures. The instant claims and that of the '125 claims are drafted with comprising language or open language which opens the claims up to the include hydrogen permeable materials such as claimed in the '125 application to add an element and its intended function would have been obvious to one having ordinary skill in the art.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

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12. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Leboe teach a method and system for controlling the operation of a hydrogen generator and fuel cell. Adlhart teach a cartridge for gas generator. Checkettes teach hydrogen generation pelletized fuel and generator Jensen teach hydrogen storage for storing and releasing hydrogen fuel. Long et al. '491 and 640 teach portable hydrogen generator. Amendola et al. teach a portable hydrogen generator. Jorgensen et al. teach a hydrogen generation system using stabilized borohydrides for hydrogen storage. Okamoto teach a method of supplying fuel gas to a fuel cell. Otsuka et al. teach a method and apparatus for supplying hydrogen and portable cassette for supplying hydrogen.

13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to N. Bhat whose telephone number is 571-272-1397. The examiner can normally be reached on Monday-Friday, 9:30AM-6:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Glenn Caldarola can be reached on 571-272-1444. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

A handwritten signature in black ink, appearing to read 'N. Bhat', with a stylized flourish at the end.

N. Bhat  
Primary Examiner  
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